# LATEST NEWS OF THE AUTOMOBILE TRADE AND INDUSTRY

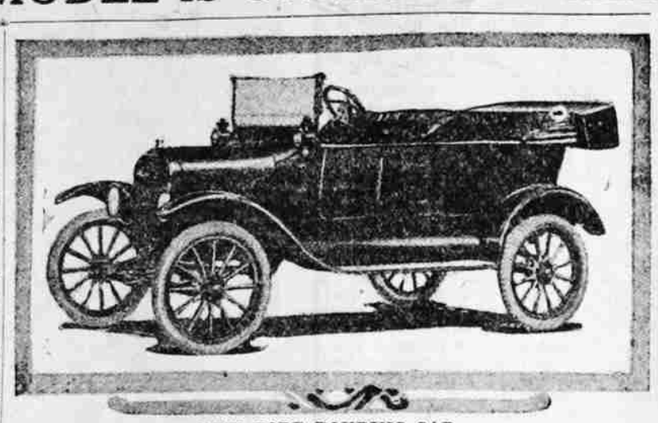
## NEW FORD MODEL IS ON THE MARKET

Sloping Hood, Enamelled Radiator and Crowned Fenders Improve Appearance of Car.

The new Ford car for 1917 will present a more graceful appearance than its predecessors owing to the use of a sloping hood, a new radiator and crowned fenders, front and rear. This new model made its appearance last week.

The wheel base and body remain identical with the previous model. The new radiator shell is a stamping in two pieces, one the shell proper and the other the top portion that bears the Ford name stamped on it. The familiar Ford filler cap and radiator spout of brass protrude at the top.

Now that the radiator is enamelled there is little brass about the car, only the filler and hub caps being of this metal. The shape of the new radiator is pleasing in that there are no abrupt edges as in the type that has become familiar the world over, the new shell having rounded edges where the side parts of the shell curve into the top portion, and the front edge is also rounded over.



NEW FORD TOURING CAR.

The new hood is provided with louvres in the sides and is shaped so that there is an unbroken line from the radiator to the body proper and it, as well as the radiator and fenders, has been given a high finish. The fenders are substantial pressings that are free from vibrations when in position on the car. They are well attached to the chassis and body.

Besides these external changes, which add a great deal to the general appearance of the car, there are two minor changes under the hood. One is the fitting of a shield around the fan, this concentrating the air and insuring its going to the whole of the radiator surface, as an aid to cooling, and the other is the fitting of an electric horn.

## CLUE TO CLUTCH; MAXWELL REMEDY

Sudden taking hold of the clutch of an automobile, that frequent and exasperating annoyance in the operation of the ordinary machinery which all but precipitates the passengers from the car and works considerable damage to the motor car in general, is said to have been eliminated in the Maxwell through a unique construction of the Maxwell clutch.

Engineers and expert automobile builders for many years have sought a solution of this problem, the same being the subject of pain taking investigation and experimentation. To a greater or lesser degree it is said this damaging annoyance in the driving of a motor car can be eliminated and it is stated that the Maxwell Motor Company has been eminently successful in completely doing away with the possibilities of a sudden griping clutch.

In order to obtain this desirable feature in automobile construction the Maxwell clutch assembly housing has been so constructed that the clutch is continually subjected to an oil bath. When operating the clutch, in making gear changes, the clutch falls back into position in such a manner that the film of oil which gathers on the clutch lining is gradually, but rapidly squeegeed from the lining, the clutch at the same time taking a firmer and firmer hold. The operation is automatic, but absolutely sure, and without jar to the cars.

The speed with which it is accomplished depends largely upon the speed at which the car is traveling and the dexterity of the driver in making the gear changes.

It is stated by the best posted authorities that a rough operating clutch does an immeasurable amount of damage to a car in a short period of time, producing quicker rear axle trouble, motor trouble and finally laying up the car. A smooth, evenly operating clutch is therefore regarded as being highly essential to a long, useful life of an automobile, hence, the Maxwell builders make an especial point of this feature of that machine.

### HOW TO REPAIR NAIL PUNCTURE ON A TIRE

Why waste a big patch on a little nail-role puncture? You can get just as good results in a much more economical way. Pick out the hole till you have a nice, clean perforation; roughen with sandpaper; apply cement allowing it to dry twenty-five or thirty minutes; then roll up a small plug of tube stock just large enough to fill the hole. Cure five minutes on the flat plate. The pressure will form the rubber plug into a sort of a rivet on the inside and the repair will hold just as well as a large, bulk patch.



## MEXICAN EXPEDITION BY MOTOR TRUCKS

"Motor trucks made possible the punitive exepdition into Mexico," says Henry Farrington of the Society of Automobile Engineers, "the United States military authorities being faced with the problem of securing many hundreds of additional four-mule army escort wagons and thousands of animals, had it not been for the auto transport.

"There would also have been over 1,000 extra mule drivers. The expense of purchasing and operating this equipment would have been simply enormous, and the mobility of the expedition would have been seriously impaired.

**Due to Business Men.**

"America owes what success the Mexican expedition has had to her progressive business men. In European countries, especially Germany, Austria, France and Russia, it was due to the foresight of the military authorities that motor trucks were available when war broke out. This was brought about by the various systems of motor lorry subventions that obtain to a greater or less degree in practically all European countries.

"In the United States there is no subsidy for motor wagons. Hence, when the Washington government decided to go after Villa, the business demanded for motor trucks had put the American motor truck manufacturers in a position to furnish on very short notice large quantities of motor trucks suitable to a greater or less degree for military transport work.

"It must not be thought, however, that the military men themselves were at all backward. On the contrary, they did wonders with the niggardly funds placed at their disposal for the purchase of military motor truck equipment.

**First Real Tests.**

"Although experiments with motor trucks were made by American army officers as far back as nine or ten years ago, the first serious experiment toward improving military road transportation was made in the summer of 1912, when a competitive test of various makes, types and capacities of motor trucks, loaned for the purpose by truck manufacturers, was made between Dubuque, Iowa, and Sparta, Wis.

**Ordinary Truck Fails.**

"This experiment was not at all conclusive, except in two important particulars. It was shown beyond the shadow of a doubt that while the ordinary truck of commerce was a very efficient and economical machine for use on a fairly good road, it failed completely under army service conditions in the field, when it was required to travel through hub-deep mud or sand and over steep grades and rough country. It was also proved to the satisfaction of the military officers that a motor truck having a load-carrying capacity of one and one-half to two tons was the most serviceable size for use under bad road conditions.

"The test was successful and unquestionably resulted in many improvements being made in motor truck design and manufacture within the following two or three years.

**Go Where Wagon Goes.**

"The report of the military officers making the Dubuque-Sparta test practically outlined the service conditions for the perfect military motor truck, which did not exist at that time. Boiled down to its essentials, the report defined a perfect truck as a machine that would go anywhere a four-mule army escort wagon could travel.

"Most of the motor trucks used by the United States military forces in Mexico are equipped with flareboard box bodies similar to those used on the regular army escort wagons. These trucks are employed in carrying provisions, camp supplies and ammunition to the base and temporary camps and to the troops in the field.

**Other Types.**

"Besides these there are a number of other interesting body types, including tank wagons for carrying gasoline, lubricants and water, trouble or repair trucks equipped with machinery and parts for effecting repairs in the field, and containing among other things an oxyacetylene welding outfit and bench equipment, etc. There are also being developed army motor field kitchens, pontoon wagons and other special motor vehicles."

## WHY THE FARMER USES AUTOMOBILES

"When we kept a horse and outfit," says a farmer who owns a motor car, "the first cost of which exceeded the cost of our car, the expense of maintenance of the horse outfit was more than $2 a day right here on the farm.

"The horse had to be fed three times a day. It had to be groomed and exercised every day whether we wanted to use it or not. Trips to the blacksmith were frequent. Expense was never ending. Added to this was our sympathy for the poor horse in very hot and very cold weather. Thought of our own comfort finally led us to purchase a machine.

"Immediately our eyes were opened to the greater economy of the motor driven vehicle. It did not have to be exercised. It cost nothing when not in use. The upkeep was far less for a vastly greater amount of work than that of the horse. The car was always ready to go anywhere at any time and get us back home again, regardless of distance, at fine speed. Where formerly a twenty-mile drive was a hardship for the horse and ourselves, our car makes easy work of 100 miles, or even 200 miles, in a day. And we ride in perfect comfort.

"When we see our neighboring milkman, butcher, fishman and farmer friends speeding about on their trading errand in motor cars, doing their work quickly and covering much greater territory in less time and with less effort and expense than ever was possible with horses, we congratulate ourselves on buying our trusty automobile. We wish we had realized its value long before we gave up our horse. We cannot look on the modern, practical, useful, reasonably priced automobile as a luxury. It has become the farmer's necessity for work and pleasure. Every farmer should own one."

—oo—

"My wife constantly pesters me for money. Does yours?"

"No; the people she buys things from do that."—Boston Transcript.

## AUTOMOBILE OWNERS SHOULD UNDERSTAND CARE OF STORAGE BATTERIES

Herewith is presented another instalment of a series of articles designed to give the motorist the knowledge necessary to enable him to care for and repair any and all of the electrical features of his car, no matter what make or model it may be. The articles are reprinted by special permission from Motor Age, for which publication they have been prepared by David Penn Moreton and Darwin S. Hatch.

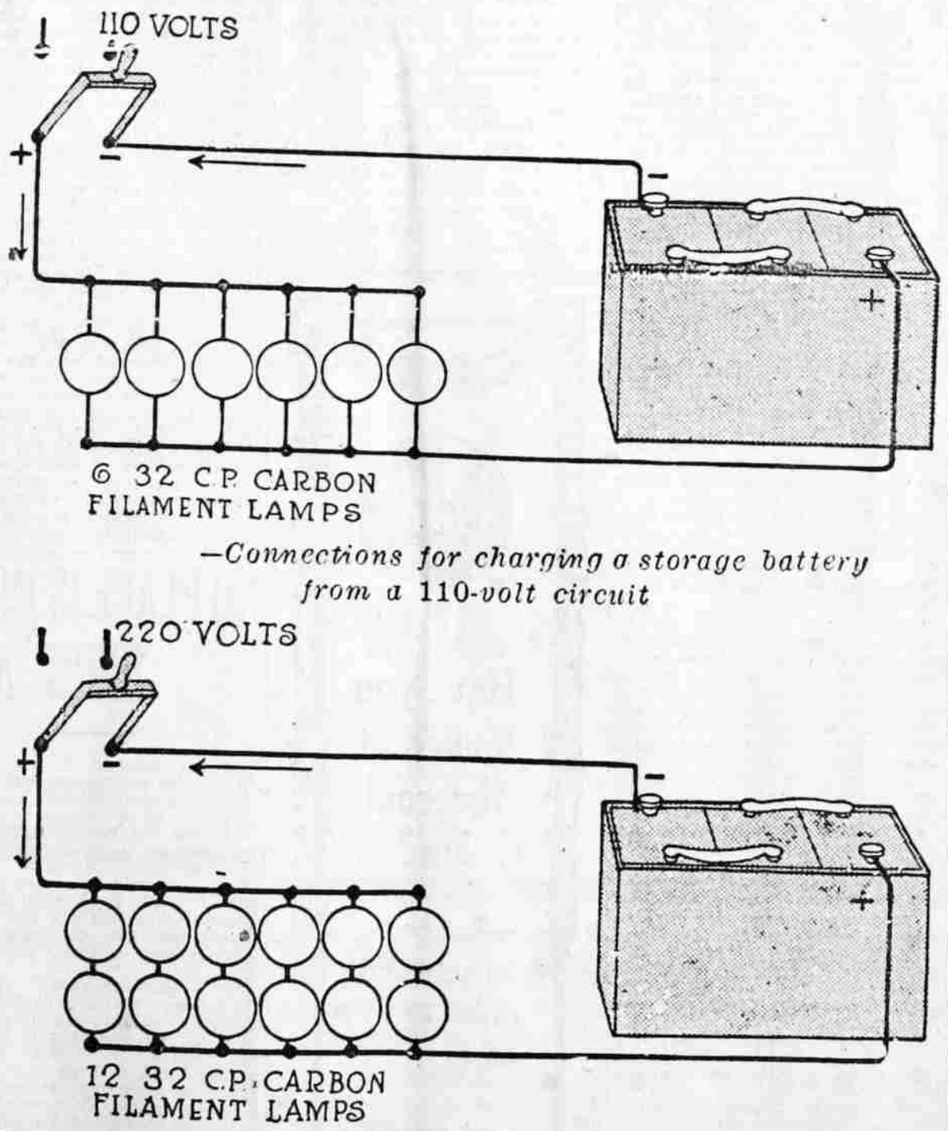
In order that a storage battery may give the best service it is possible for it to give it is necessary that it receive a reasonable amount of care and attention rather than to wait until it is exhausted before the motorist knows there is such a thing as a battery on his car, or how to take care of it. If the following general rules are followed with reasonable care the operation of any good make of lead storage battery should be quite satisfactory:—

I.—Add nothing but pure water or sulphuric acid electrolyte of the proper specific gravity to the cells. Under no condition try to operate your battery by adding a non-freezing solution of any kind. Water must be added frequently enough to keep the plates covered, as they may be seriously damaged if allowed to be exposed for any length of time. It will be found necessary to add water more frequently in warm weather than in cool or cold weather, and for this reason it is best to make it a rule to remove the vent plugs and add the water once a week.

In freezing or very cold weather the water should be added just before the car is started in order that the water and electrolyte in the cell may become thoroughly mixed while the battery is charging. The water is lighter than the acid and would remain at the top of the cell and probably freeze, but if charged immediately the bubbles of gas formed when the cell is charging will serve thoroughly to mix the water and the electrolyte. Be careful not to add too much water, as the cell will boil over when it starts to gas and some of the electrolyte will be lost, and it should be replaced with new electrolyte rather than water in order that the specific gravity of the electrolyte in the cell may remain practically constant for a fully charged condition of the cell.

**Specific Gravity Should Be Watched.**

II.—The specific gravity of the different cells should be determined at frequent and regular intervals in order to determine if the battery is being properly charged. These hydrometer readings should be taken before adding the water to the electrolyte. In some cases the electrolyte may be so low in the cell that it is impossible to get enough electrolyte up into the hydrometer syringe to float the hydrometer. Water must then be added and the cell charged for some time in order that the water and electrolyte may mix thoroughly before a hydrometer reading is taken. If the cell is completely discharged or exhausted it should be removed from the car and given a special charge. In some cases it will be impossible to increase the specific gravity of the electrolyte regardless of the time of charge, which is an indication that there probably is a short circuit inside the cell, and in such a case it needs the attention of an experienced battery man.




—*Connections for charging a storage battery from a 110-volt circuit*

—*Connections for charging a storage battery from a 220-volt circuit*

Courtesy Motor Age

It occasionally happens that the specific gravity of the electrolyte tests in the neighborhood of perhaps 1,200, although the battery appears to be almost completely discharged, as determined by a voltmeter or dim lights. This condition is due to acid having been added to the various cells to replace evaporation instead of adding just pure water, and in addition there is probably some trouble within the cell, such as plates in partial contact, &c. The battery should be given a complete charge—that is, it should be charged until the voltage and specific gravity of each cell shows no change in value for a period of several hours.

At the end of this charge take the specific gravity of each cell and if it is above 1,300 draw off some of the electrolyte and add pure water until the specific gravity of all the cells test the same, which should be somewhere between 1,270 and 1,300. If the specific gravity of the electrolyte tests low withdraw some of it from the cell by means of the hydrometer syringe and add electrolyte having a specific gravity of about 1,300 until the gravity of the electrolyte in the cell has been raised to the desired value. Remember that the cell should be charged for a period after water or electrolyte is added in order that the electrolyte may be mixed thoroughly.

III.—Care should be exercised in keeping the outside of the battery clean. It should be wiped off occasionally, and the compartment in which it is placed should be examined for excessive corrosion due to acid from a leaky cell or perhaps from acid which has run out of the vent hole at the top of the cell.

Be careful in cleaning the battery not to get any impurities into the various cells. The connections to the battery should be examined thoroughly at regular intervals to see that they are not working loose or becoming corroded. A rag dampened with weak ammonia may be used to counteract the acid in cleaning about the battery. Hard vaseline may be used to prevent excessive corrosion at the terminals.

**Charging the Battery.**

The best results are obtained in charging a storage battery at such a rate that it will be completely charged in about eight hours. The battery companies usually specify the rate at which their different types and sizes of cells should be charged, and that rate should be followed. This charge should continue until there is no increase in either the voltage of the cell, as indicated by a voltmeter, or the specific gravity of the electrolyte, as indicated by the hydrometer, for a period of perhaps five hours. The electrolyte in the various cells should be gassing—that is, bubbling freely—before the end of the charge.

In some cases the temperature of the cell may become quite high during charge, and in such cases it is best either to reduce the rate of charge or to stop the charge entirely until the temperature is lowered to a safe value. In no conditions should the temperatures of the cell be allowed to exceed 110 degrees Fahrenheit.

If a battery is completely discharged it may take twenty hours or more to recharge it completely at the normal rate. This time may be reduced where conditions demand that the battery be charged in a shorter time by charging the battery at twice its normal rate during the first part of the charge and then reducing this rate to normal value as soon as there are any indications of gassing. But it is not recommended as the proper method of procedure to follow in general. The temperature of the cells should be watched carefully and the rate reduced if the temperature rises to the neighborhood of 110 degrees Fahrenheit.

**Trouble in Cell.**

In some cases the temperature may become excessive, although there is little or no gassing in the cells and the specific gravity is low. This is an indication of trouble in the cell, and it should be examined by a battery man.

A storage battery must be charged by sending a direct current through it from the positive to the negative terminals. Under no conditions try to charge it by using an alternating current, as this will ruin the battery. In some places alternating current only is available, and in such cases it will be necessary to convert the alternating current into direct current.

If a single 6-volt battery is to be charged from a 110-volt D. C. circuit connections may be made as shown in the accompanying illustration. A resistance must be placed in series with the battery in order to regulate the value of the current, and a very convenient resistance is to use a number of 11-volt 32 candle power carbon-filament incandescent lamps connected in parallel and the combination in turn connected in series with the battery, as shown in the figure. Each of the 32 candle power lamps will allow approximately 1 ampere to pass through the battery, so if the charging rate in amperes is known the number of lamps required will be equal to this rate. When 16 candle power carbon-filament lamps are used instead of the 32 candle power ones, twice as many lamps will be required, as each 16 candle power carbon-filament lamp will allow approximately only ½ ampere to pass through the battery. If high efficiency lamps, such as tungsten, be used more lamps will be required, as the current rating of the high efficiency lamps is less than the current rating of carbon-filament lamps.

When a 220-volt circuit is available instead of a 110-volt circuit two 110-volt lamps must be connected in series, as shown in the illustration. When a 550-volt circuit is available five lamps must be connected in series and a sufficient number of these series combinations connected in parallel to give the desired charging current.

Several batteries may be charged in series more efficiently than by charging each battery alone. If several batteries be connected in series in place of the single battery shown in the illustration less resistance will be required in order that the proper charging current may pass through the batteries. The reason for this is that with an increase in the number of batteries in series there is a decrease in the value of the effective pressure acting in the circuit, which is equal to the difference between the pressure between the terminals of the charging circuit and the combined pressure of all of the batteries in series, and hence there must be a decrease in the value of the resistance of the circuit in order that the current may remain constant.

There is a limit, however, to the number of batteries that may be charged in series, and this limit is reached when the combined pressure of all the batteries in series at the end of charge and with the circuit closed is exactly equal to the pressure between the terminals of the charging circuit. In these conditions there is no resistance required in the circuit, and all the energy drawn from the charging circuit is used within the batteries instead of part of this energy appearing as heat in the resistance.

**Care When Not in Service.**

It may happen that the battery will be out of service for a considerable period, as when the car is put away during the winter months, and during this time it should not be allowed to stand without attention. If the battery is to be out of service for only three or four weeks it should be filled with pure water and be given a complete charge the last few days the car is in service by using the lamps and starting motor very sparingly. The specific gravity of the electrolyte should test between 1,270 and 1,300. The batteries should be entirely disconnected from all circuits, as any slight leak will in time completely discharge it. It should be put in a room the temperature of which is fairly uniform and, if possible, in the neighborhood of 70 degrees Fahrenheit.

If the battery is to be out of service for several months it is perhaps best to send it to a reliable battery station for storage, where it will receive the necessary attention from time to time.

No matter what procedure is followed water should always be added and the battery should be fully charged before it is put back into service. If the battery has stood for five or six months without being charged it should be charged for 40 or 50 hours at one-half normal rate before being put back into service. If the battery does not charge properly the plates are defective.